



**BURLINGTON
ENVIRONMENTAL**

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Mr. Dave Croxton
EPA Project Coordinator
U.S. EPA
1200 Sixth Avenue, M/S HW-106
Seattle, WA 98101

Re: Burlington Environmental Inc. (BE) Pier 91 RFI Workplan

Enclosed are BE responses to USEPA's July 9, 1992 Conditional Comments to the Pier 91 RFI Workplan submitted to USEPA on April 17, 1992. At this time BE is responding only to the items requiring a response within 21 days of receipt (Comments 1 & 2). The remaining comments require BE to respond within 90 days of receipt by BE.

If you have any questions or require further information, please contact me at (206) 223-7596.

Sincerely,

John Stiller
Project Coordinator

cc: Galen Tritt - Ecology NWRO



RESPONSES TO U.S. EPA CONDITIONAL COMMENTS FOR "RCRA
FACILITY INVESTIGATION WORK PLAN BURLINGTON
ENVIRONMENTAL INC. PIER 91
FACILITY"

- 1) DNAPL Monitoring: On the attachment, the contours of the upper surface of the silty sand layer have been overlaid on the map of the borings and wells. As proposed, no DNAPL monitoring wells (CP-113, CP-115A, CP-120, and CP-121) are located in the lowest area of the top of the silty-sand layer enclosed by the -15 foot contour line. Since DNAPLs would most likely migrate to this area, there should be at least one DNAPL monitoring well inside this -15 foot contour line. This change can be accomplished in various ways including installing another well; however, EPA is agreeable to having Well CP-117 installed as a DNAPL monitoring well at its present proposed location as satisfying this need, so long as doing so would not compromise this well's other intended purposes. If the present well system can not be modified without compromising the other purposes of the wells, an additional DNAPL well will be necessary in this area. (For your information, a recent Office of Solid Waste memorandum on NAPL monitoring and remediation is attached.)

A work plan modification to monitor this area, as well as a discussion of how this change affects other monitoring goals, must be submitted to EPA within 21 days of receipt of this letter.

Response to comment(1):

One approach would be to change the location of proposed monitoring well CP-117, which is currently planned for the southeast corner of the small yard, and install it as a DNAPL monitoring well. However, access to and space in this area are extremely limited, making it doubtful that this could be accomplished practically. Therefore, the following alternative approach is preferred.

Burlington proposes to change the location of planned monitoring wells CP-115A and CP-115B. Under the proposed change, the locations of wells CP-115A and CP-115B would be moved approximately 53 feet west of the location shown on Figure C-1 of the RFI Work Plan, approximately to the location of former test boring TB-3. These changes would allow Burlington to meet the existing goals for wells CP-115A and CP-115B, as given in Table C-1 of the RFI Work Plan. The changes would also enable Burlington to monitor for DNAPLs within that part of the shallow aquifer that overlies the estimated lowest area of the top of the silty sand layer.

- 2) Hydrological Zone Interconnection: No direct methods are proposed to measure the amount of interconnection between the upper and lower water bearing zones through the silty-sand layer. Pump testing or some equivalent method is needed to provide more definitive data on the continuity and properties of the silty-sand layer. The importance of determining the properties of this layer are outlined in our original comments (comment #4). If a pump test is selected, it will require pumping groundwater from the lower water bearing zone with observation wells located in both the upper and lower zones. A large diameter well will be needed to pump sufficient water to run the test. In anticipation of the pump test, Burlington may want to construct one of the proposed deeper wells as a larger diameter well. Alternatively, an extraction well can be added to the current proposal for the purposes of this test.

Response to comment (2):

Burlington proposes the following:

- Change the location of proposed deep-aquifer monitoring well CP-122B to approximately 67 feet north of the location shown on Figure C-1 of the RFI Work Plan;
- Change the existing construction plans for proposed monitoring well CP-122 as follows:
 - Change the inner diameter of the conductor casing (outer casing) from 6 or 8 inches to 12 inches;
 - Change the shallow aquifer borehole diameter from 10 inches to 14 inches;
 - Change the deep aquifer borehole diameter from 6 inches to 10 inches; and
 - Change the well casing from 2-inch PVC to 6-inch PVC.
- Change the location of proposed deep-aquifer monitoring well CP-107B to approximately the same location as shallow monitoring well CP-106. It would then be identified as "CP-106B"; and
- Install a one- or two-inch diameter piezometer in the shallow aquifer at the approximate new location of well CP-122B.

With these changes, well CP-122B could be used as a deep-aquifer pumping well during hydraulic testing of the silty sand layer; simultaneously, water levels could be monitored in deep well CP-106B and in shallow well CP-106 and in the shallow-well piezometer.

This location (CP-106) is accessible to drilling rigs and associated equipment, and is in an area where drilling and testing could be performed without substantial disruption of facility operations. Also, having the pumping well at this location rather than a more northerly location reduces the possibility that contaminated groundwater in the shallow aquifer in the northern portion of the site is drawn into the deep aquifer during pumping.

Finally, this location is within the area of the estimated depression in the upper surface of the silty sand layer. To the extent that this depression coincides with a reduction in the layer thickness, it is the area where vertical inter-aquifer leakage is most likely to occur and hence a logical place to conduct hydraulic testing of the silty sand layer.